

NEWS MEDIA CONTACTS:

Reuel Smith, 208-521-4910, [reuel.smith@inl.gov](mailto:reuel.smith@inl.gov)

Misty Benjamin, 208-351-9900, [misty.benjamin@inl.gov](mailto:misty.benjamin@inl.gov)

**National labs integrate technologies to trap contaminants, protect workers**

IDAHO FALLS, Idaho – The U.S. Department of Energy's Idaho National Laboratory (INL) and the United Kingdom's National Nuclear Laboratory (NNL) recently entered into a partnership that merges their respective innovations into a one-of-a-kind contamination containment tool. The tool captures radioactive particles in nuclear facilities to reduce airborne contamination hazards during reactor decommissioning.

The one-year, \$250,000 project – funded by the U.S. Department of Energy – will test and demonstrate how these two technologies can be successfully designed and engineered into one functioning unit.

"Combining these two technologies is a terrific fit in terms of fostering international nuclear collaboration and resolving airborne contamination and contaminated particle issues in old facilities," said INL Program Director Richard Rankin. "And, it's a high-impact win for the U.S. Department of Energy's Environmental Management Program."

Over the past several years, INL researchers Rick Demmer and Julia Tripp developed a new contamination capture coating and fogging agent, dubbed FX1. This fogging fixative contains a sticky base and surfactant that behaves similar to a gas and can be introduced into targeted spaces at low pressure and low velocity to increase its penetration into hard-to-reach areas. It then captures and fixes radioactive materials, metals and other contamination in place. The technology improves safety during nuclear facility decommissioning by assuring that contamination does not escape or expose workers during cleaning operations.

The UK's NNL team was independently working with its partner, Pursuit Dynamics plc (PDX), to develop the nuclear applications of its patented, and superior, misting technology that performs a more complete atomization of high-solid solutions at very high volumes.

"This atomization technology offers a game-changing delivery mechanism for reagents, fixatives and decontaminants," said NNL scientist Jeremy Edwards. "The PDX technology delivers a droplet size of 1 to 4 microns, with the resultant turbulent mist behaving in a gas-like manner to ensure dispersion that can quickly fill a 300-cubic-meter space in two minutes. This system enables the application of fixatives/strippable coatings/reagents, etc., to areas where there is no manned access."

By advancing fogging contamination controls, worker safety and performance margins will increase. This approach enables a reduction in the physiological burden associated with working in these environments, improving the ability to address human operator considerations and therefore improve safety.

INL is one of the DOE's 10 multiprogram national laboratories. The laboratory performs work in each of DOE's strategic goal areas: energy, national security, science and environment. INL is the nation's leading center for nuclear energy research and development. Day-to-day management and operation of the laboratory is the responsibility of Battelle Energy Alliance.

Subscribe to RSS feeds for INL news and feature stories at [www.inl.gov](http://www.inl.gov). Follow @INL on Twitter or visit our Facebook page at [www.facebook.com/IdahoNationalLaboratory](http://www.facebook.com/IdahoNationalLaboratory).

—INL-12-028—

About NNL

The UK's National Nuclear Laboratory is a leading nuclear technology services provider. The business specializes in providing customers with tailored solutions by applying the right level of technical innovation and intellectual support. NNL provides services to customers across three key areas:

- Fuel Cycle Solutions – provides fundamental technical solutions to the nuclear industry, including fuel cycle performance and technology development, spent fuel disposition, plant integrity and inspections, nuclear security, safety management, engineering services, and modeling and simulation;
- Waste Management and Decommissioning – provides products and services to help customers reduce their through life liabilities via the development and application of technologies and techniques that assist with the decommissioning of nuclear facilities. Key services include environmental management, measurement and analysis, effluent management, waste management and processing, and immobilization technology; and
- Reactor Operations Support – provides support to customers in areas such as post-irradiation examination of reactor fuel and components. Key services include endoscopy, fuel and graphite performance, metallography, post-irradiation examination and power station chemistry.

For more information about NNL, go to: [www.nnl.co.uk](http://www.nnl.co.uk), and/or contact Adrian Bull, director of External Relations, National Nuclear Laboratory, +44 (0) 7894 836553; [adrian.j.bull@nnl.co.uk](mailto:adrian.j.bull@nnl.co.uk)

